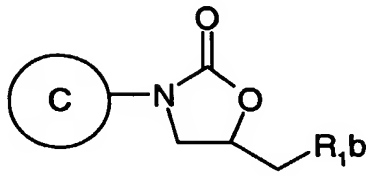
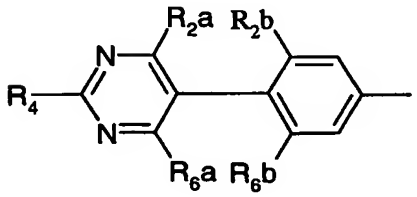
Claims

1. A compound of the formula (I), or a pharmaceutically-acceptable salt, or an in-vivo-hydrolysable ester thereof,

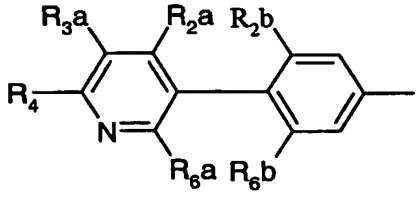


(I)

wherein C is selected from D and E,



D



E

wherein in D and E the phenyl ring is attached to the oxazolidinone in (I);

R_1b is $-NR_{25}C(=W)R_{24}$;

wherein W is O or S;

R_{24} is hydrogen, amino, (2-6C)alkyl (optionally substituted by 1, 2 or 3 substituents independently selected from methyl, chloro, bromo, fluoro, methoxy, methylthio, azido and cyano), methyl (substituted by 1, 2 or 3 substituents independently selected from methyl, chloro, bromo, fluoro, methoxy, methylthio, hydroxy, benzyloxy, ethynyl, (1-4C)alkoxycarbonyl, azido and cyano), 5-halo-2-thienyl, $-NHR_{26}$, $-N(R_{26})(R_{27})$, $-OR_{26}$ or $-SR_{26}$, (2-4C)alkenyl, -(1-8C)alkylaryl, per-halo(1-8C)alkyl, $-(CH_2)p$(3-6C)cycloalkyl or $-(CH_2)p$(3-6C)cycloalkenyl wherein p is 0, 1 or 2;

R_{25} is hydrogen, (3-6C)cycloalkyl, phenyloxycarbonyl, tert-butoxycarbonyl, fluorenyloxycarbonyl, benzyloxycarbonyl, (1-6C)alkyl (optionally substituted by cyano or (1-4C)alkoxycarbonyl), $-CO_2R_{28}$, $-C(=O)R_{28}$, $-C(=O)SR_{28}$, $-C(=S)R_{29}$, $P(O)(OR_{29})(OR_{30})$ and $-SO_2R_{31}$, wherein R_{28}, R_{29}, R_{30} and R_{31} are as defined hereinbelow;

R_{28} is hydrogen, (3-6C)cycloalkyl, phenyl, benzyl, (1-5C)alkanoyl, (1-6C)alkyl (optionally substituted by substituents independently selected from (1-5C)alkoxycarbonyl, hydroxy,

cyano, up to 3 halogen atoms and -$NR_{15}R_{16}$ (wherein R_{15} and R_{16} are independently selected from hydrogen, phenyl (optionally substituted with one or more substituents selected from halogen, (1-4C)alkyl and (1-4C)alkyl substituted with one, two, three or more halogen atoms) and (1-4C)alkyl (optionally substituted with one, two, three or more halogen atoms), or for any $N(R_{15})(R_{16})$ group, R_{15} and R_{16} may additionally be taken together with the nitrogen atom to which they are attached to form a pyrrolidinyl, piperidinyl or morpholinyl ring));

R_{29} and R_{30} are independently selected from hydrogen and (1-4C)alkyl;

R_{31} is (1-4C)alkyl or phenyl;

R_{26} and R_{27} are independently selected from hydrogen, phenyl (optionally substituted with one or more substituents selected from halogen, (1-4C)alkyl and (1-4C)alkyl substituted with one, two, three or more halogen atoms) and (1-4C)alkyl (optionally substituted with one, two, three or more halogen atoms), or for any $N(R_{26})(R_{27})$ group, R_{26} and R_{27} may additionally be taken together with the nitrogen atom to which they are attached to form an unsubstituted or substituted pyrrolidinyl, piperidinyl or morpholinyl ring, which ring may be optionally substituted by a group selected from (1-4C)alkyl, (3-6C)cycloalkyl, (1-4C)alkanoyl, -COO(1-4C)alkyl, -S(O)n(1-4C)alkyl (wherein n = 1 or 2), -COOAR1, -CS(1-4C)alkyl and –C(=S)O(1-4C)alkyl;

R_2a and R_6a are independently selected from H, CF_3, OMe, SMe, Me and Et;

R_2b and R_6b are independently selected from H, F, Cl, CF_3, OMe, SMe, Me and Et;

R_3a is selected from H, (1-4C)alkyl, cyano, Br, F, Cl, OH, (1-4C)alkoxy, -$S(O)_n$(1-4C)alkyl (wherein n = 0,1,or 2), amino, (1-4C)alkylcarbonylamino, nitro, -CHO, -CO(1-4C)alkyl, -$CONH_2$ and -CONH(1-4C)alkyl;

R_4 is selected from R_4a and R_4b wherein

R_4a is selected from azido, -NR_7R_8, OR_{10}, (1-4C)alkyl, (1-4C)alkoxy, (3-6C)cycloalkyl, -$(CH_2)_k$-R_9, AR1, AR2, (1-4C)alkanoyl, -CS(1-4C)alkyl, -C(=W)NRvRw [wherein W is O or S, Rv and Rw are independently H, or (1-4C)alkyl], -$(C=O)_l$-R_6, -COO(1-4C)alkyl, -C=OAR1, -C=OAR2, -COOAR1, S(O)n(1-4C)alkyl (wherein n = 1 or 2), -S(O)pAR1, -S(O)pAR2 and –C(=S)O(1-4C)alkyl; wherein any (1-4C)alkyl chain may be optionally substituted by (1-4C)alkyl, cyano, hydroxy or halo; p = 0,1 or 2;

R_4b is selected from HET-3;

R_6 is selected from hydrogen, (1-4C)alkoxy, amino, (1-4C)alkylamino and hydroxy(1-4C)alkylamino;

k is 1 or 2;

l is 1 or 2;

R_7 and R_8 are independently selected from H and (1-4C)alkyl, or wherein R_7 and R_8 taken together with the nitrogen to which they are attached can form a 5-7 membered ring optionally with an additional heteroatom selected from N, O, S(O)n (wherein n = 1 or 2) in place of 1 carbon atom of the so formed ring; wherein the ring may be optionally substituted by one or two groups independently selected from (1-4C)alkyl, (3-6C)cycloalkyl, (1-4C)alkanoyl, -COO(1-4C)alkyl, -S(O)n(1-4C)alkyl (wherein n = 1 or 2), AR1, AR2, , -C=OAR1, -C=OAR2, -COOAR1, -CS(1-4C)alkyl, –C(=S)O(1-4C)alkyl, -C(=W)NRvRw [wherein W is O or S, Rv and Rw are independently H, or (1-4C)alkyl], -S(O)pAR1 and -S(O)pAR2; wherein any (1-4C)alkyl, (3-6C)cycloalkyl or (1-4C)alkanoyl group may be optionally substituted (except on a carbon atom adjacent to a heteroatom) by one or two substituents selected from (1-4C)alkyl, cyano, hydroxy, halo, amino, (1-4C)alkylamino and di(1-4C)alkylamino; p = 0,1 or 2;

R_9 is independently selected from R_9a to R_9d below:

R_9a: AR1, AR2, AR2a, AR2b, AR3, AR3a, AR3b, AR4, AR4a, CY1, CY2;

R_9b: cyano, carboxy, (1-4C)alkoxycarbonyl, -C(=W)NRvRw [wherein W is O or S, Rv and Rw are independently H, or (1-4C)alkyl and wherein Rv and Rw taken together with the amide or thioamide nitrogen to which they are attached can form a 5-7 membered ring optionally with an additional heteroatom selected from N, O, S(O)n in place of 1 carbon atom of the so formed ring; wherein when said ring is a piperazine ring, the ring may be optionally substituted on the additional nitrogen by a group selected from (1-4C)alkyl, (3-6C)cycloalkyl, (1-4C)alkanoyl, -COO(1-4C)alkyl, -S(O)n(1-4C)alkyl (wherein n = 1 or 2), -COOAR1, -CS(1-4C)alkyl and –C(=S)O(1-4C)alkyl; wherein any alkyl, alkanoyl or cycloalkyl may itself optionally be substituted by cyano, hydroxy or halo)], ethenyl, 2-(1-4C)alkylethenyl, 2-cyanoethenyl, 2-cyano-2-((1-4C)alkyl)ethenyl, 2-nitroethenyl, 2-nitro-2-((1-4C)alkyl)ethenyl, 2-((1-4C)alkylaminocarbonyl)ethenyl, 2-((1-4C)alkoxycarbonyl)ethenyl, 2-(AR1)ethenyl, 2-(AR2)ethenyl, 2-(AR2a)ethenyl;

R_9c: (1-6C)alkyl

{optionally substituted by one or more groups (including geminal disubstitution) each independently selected from hydroxy, (1-10C)alkoxy, (1-4C)alkoxy-(1-4C)alkoxy, (1-4C)alkoxy-(1-4C)alkoxy-(1-4C)alkoxy, (1-4C)alkylcarbonyl, phosphoryl [-O-P(O)$(OH)_2$, and mono- and di-(1-4C)alkoxy derivatives thereof], phosphiryl [-O-P$(OH)_2$ and mono- and di-(1-4C)alkoxy derivatives thereof], and amino; and/or optionally substituted by one group

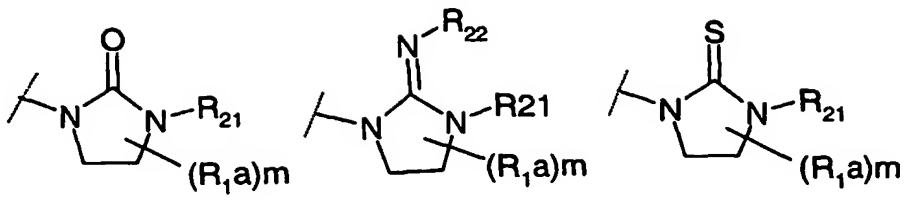
selected from carboxy, phosphonate [phosphono, $-P(O)(OH)_2$, and mono- and di-(1-4C)alkoxy derivatives thereof], phosphinate [$-P(OH)_2$ and mono- and di-(1-4C)alkoxy derivatives thereof], cyano, halo, trifluoromethyl, (1-4C)alkoxycarbonyl, (1-4C)alkoxy-(1-4C)alkoxycarbonyl, (1-4C)alkoxy-(1-4C)alkoxy-(1-4C)alkoxycarbonyl, (1-4C)alkylamino, di((1-4C)alkyl)amino, (1-6C)alkanoylamino-, (1-4C)alkoxycarbonylamino-, N-(1-4C)alkyl-N-(1-6C)alkanoylamino-, -C(=W)NRvRw [wherein W is O or S, Rv and Rw are as hereinbefore defined], (=NORv) wherein Rv is as hereinbefore defined, (1-4C)alkylS(O)$_p$NH, (1-4C)alkylS(O)$_p$-((1-4C)alkyl)N-, fluoro(1-4C)alkylS(O)$_p$NH-, fluoro(1-4C)alkylS(O)$_p$-((1-4C)alkyl)N-, (1-4C)alkylS(O)$_q$-, CY1, CY2, AR1, AR2, AR3, AR1-O-, AR2-O-, AR3-O-, AR1-S(O)$_q$-, AR2-S(O)$_q$-, AR3-S(O)$_q$-, AR1-NH-, AR2-NH-, AR3-NH- (p is 1 or 2 and q is 0, 1 or 2), and also AR2a, AR2b, AR3a and AR3b versions of AR2 and AR3 containing groups}; wherein any (1-4C)alkyl present in any substituent on R_9c may itself be substituted by one or two groups independently selected from cyano, hydroxy, halo, amino, (1-4C)alkylamino and di(1-4C)alkylamino, provided that such a substituent is not on a carbon adjacent to a heteroatom atom if present;

R_9d: $R_{14}C(O)O(1-6C)alkyl-$ wherein R_{14} is AR1, AR2, (1-4C)alkylamino, benzyloxy-(1-4C)alkyl or (1-10C)alkyl {optionally substituted as defined for (R_9c)};

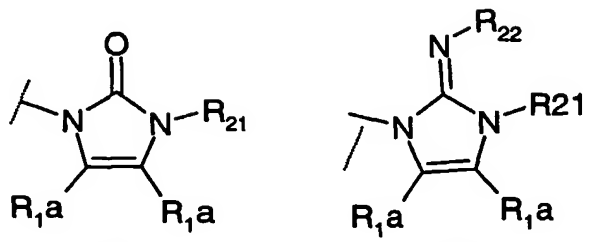
R_{10} is selected from hydrogen, R_9c (as hereinbefore defined), (1-4C)alkanoyl and (1-4C)alkylsulfonyl;

HET-3 is selected from:

a) a 5-membered heterocyclic ring contining at least one nitrogen and/or oxygen in which any carbon atom is a C=O , C=N, or C=S group, wherein said ring is of the formula HET3-A to HET3-E below:

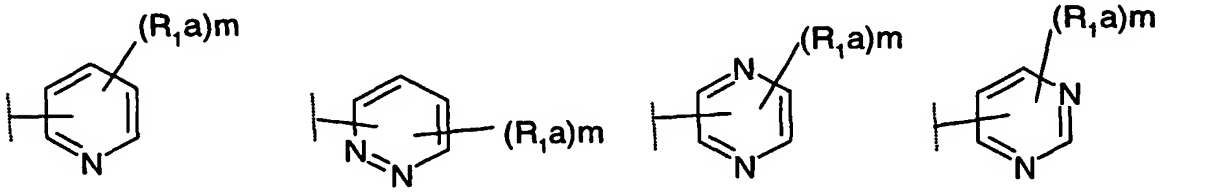


HET3-A HET3-B HET3-C

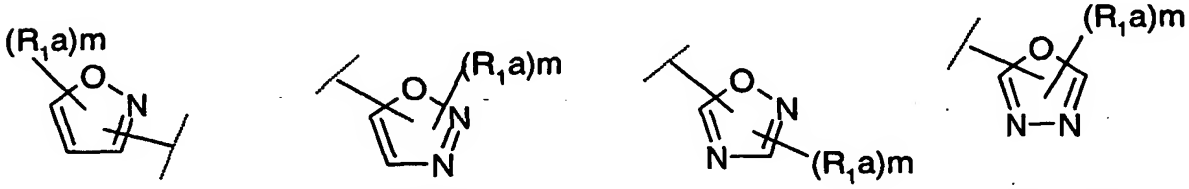


HET3-D HET3-E

b) a carbon-linked 5- or 6-membered heteroaromatic ring containing 1, 2, 3, or 4 heteroatoms independently selected from N, O and S selected from HET3-F to HET3-Y below:

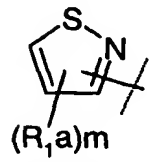


HET3-F HET3-G HET3-H HET3-I

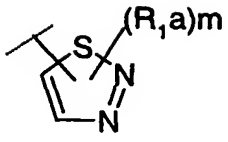


HET3-J HET3-K HET3-L HET3-M

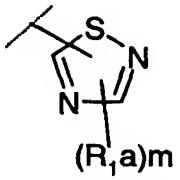
5



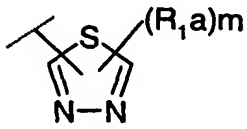
HET3-N



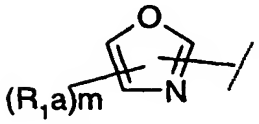
HET3-O



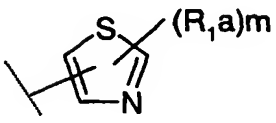
HET3-P



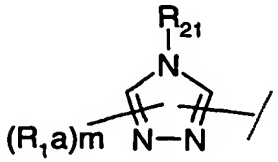
HET3-Q



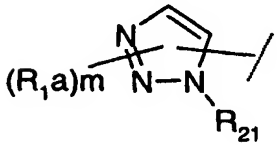
HET3-R



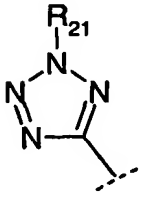
HET3-S



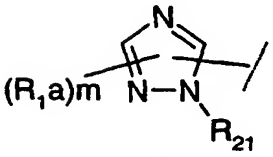
HET3-T



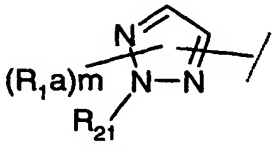
HET3-U



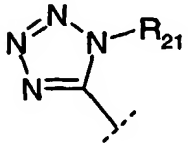
HET3-V



HET3-W

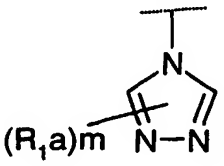


HET3-X

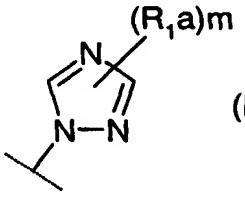


HET3-Y

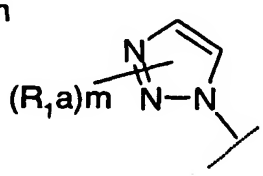
c) a nitrogen-linked 5- or 6-membered heteroaromatic ring containing 1, 2, 3, or 4 heteroatoms independently selected from N, O and S selected from HET3-Z to HET3-AH below:



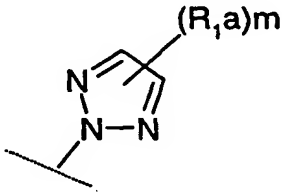
HET3-Z



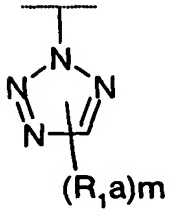
HET3-AA



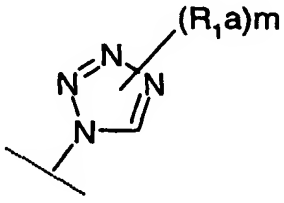
HET3-AB



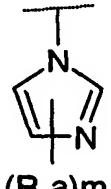
HET3-AC



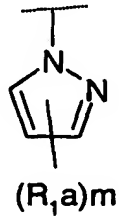
HET3-AD



HET3-AE



HET3-AF



HET3-AG

HET3-AH

wherein in HET-3, R_1a is a substituent on carbon;

R_1a is independently selected from R_1a1 to R_1a5 below:

R_1a1: AR1, AR2, AR2a, AR2b, AR3, AR3a, AR3b, AR4, AR4a, CY1, CY2;

R_1a2: cyano, carboxy, (1-4C)alkoxycarbonyl, -C(=W)NRvRw [wherein W is O or S, Rv and Rw are independently H, or (1-4C)alkyl and wherein Rv and Rw taken together with the amide or thioamide nitrogen to which they are attached can form a 5-7 membered ring optionally with an additional heteroatom selected from N, O, S(O)n in place of 1 carbon atom of the so formed ring; wherein when said ring is a piperazine ring, the ring may be optionally substituted on the additional nitrogen by a group selected from (1-4C)alkyl, (3-6C)cycloalkyl, (1-4C)alkanoyl, -COO(1-4C)alkyl, -S(O)n(1-4C)alkyl (wherein n = 1 or 2), -COOAR1, -CS(1-4C)alkyl) and –C(=S)O(1-4C)alkyl; wherein any (1-4C)alkyl, (1-4C)alkanoyl and (3-6C)cycloalkyl substituent may itself be substituted by cyano, hydroxy or halo, provided that, such a substituent is not on a carbon adjacent to a nitrogen atom of the piperazine ring], ethenyl, 2-(1-4C)alkylethenyl, 2-cyanoethenyl, 2-cyano-2-((1-4C)alkyl)ethenyl, 2-nitroethenyl, 2-nitro-2-((1-4C)alkyl)ethenyl, 2-((1-4C)alkylaminocarbonyl)ethenyl, 2-((1-4C)alkoxycarbonyl)ethenyl, 2-(AR1)ethenyl, 2-(AR2)ethenyl, 2-(AR2a)ethenyl;

R_1a3: (1-10C)alkyl {optionally substituted by one or more groups (including geminal disubstitution) each independently selected from hydroxy, (1-10C)alkoxy, (1-4C)alkoxy-(1-4C)alkoxy, (1-4C)alkoxy-(1-4C)alkoxy-(1-4C)alkoxy, (1-4C)alkylcarbonyl, phosphoryl [-O-P(O)$(OH)_2$, and mono- and di-(1-4C)alkoxy derivatives thereof], phosphiryl [-O-P$(OH)_2$ and mono- and di-(1-4C)alkoxy derivatives thereof], and amino; and/or optionally substituted by one group selected from carboxy, phosphonate [phosphono, -P(O)$(OH)_2$, and mono- and di-(1-4C)alkoxy derivatives thereof], phosphinate [-P$(OH)_2$ and mono- and di-(1-4C)alkoxy derivatives thereof], cyano, halo, trifluoromethyl, (1-4C)alkoxycarbonyl, (1-4C)alkoxy-(1-4C)alkoxycarbonyl, (1-4C)alkoxy-(1-4C)alkoxy-(1-4C)alkoxycarbonyl, (1-4C)alkylamino, di((1-4C)alkyl)amino, (1-6C)alkanoylamino-, (1-4C)alkoxycarbonylamino-, N-(1-4C)alkyl-N-(1-6C)alkanoylamino-, -C(=W)NRvRw [wherein W is O or S, Rv and Rw are independently H, or (1-4C)alkyl and wherein Rv and Rw taken together with the amide or thioamide nitrogen to which they are attached can form a 5-7 membered ring optionally with an additional heteroatom selected from N, O, S(O)n in place of 1 carbon atom of the so formed ring; wherein when said ring is a piperazine ring, the ring may be optionally substituted on the additional nitrogen by a group selected from (1-4C)alkyl, (3-6C)cycloalkyl, (1-4C)alkanoyl, -COO(1-4C)alkyl, -S(O)n(1-4C)alkyl (wherein n = 1 or 2), -COOAR1, -CS(1-4C)alkyl and –C(=S)O(1-4C)alkyl], (=NORv) wherein Rv is as hereinbefore defined, (1-4C)alkylS(O)$_p$NH-, (1-4C)alkylS(O)$_p$-((1-4C)alkyl)N-, fluoro(1-4C)alkylS(O)$_p$NH-,

fluoro(1-4C)alkylS(O)$_p$((1-4C)alkyl)N-, (1-4C)alkylS(O)$_q$-, CY1, CY2, AR1, AR2, AR3, AR1-O-, AR2-O-, AR3-O-, AR1-S(O)$_q$- , AR2-S(O)$_q$- , AR3-S(O)$_q$- , AR1-NH-, AR2-NH-, AR3-NH- (p is 1 or 2 and q is 0, 1 or 2), and also AR2a, AR2b, AR3a and AR3b versions of AR2 and AR3 containing groups}; wherein any (1-4C)alkyl, (1-4C)alkanoyl and (3-6C)cycloalkyl present in any substituent on R_1a3 may itself be substituted by one or two groups independently selected from cyano, hydroxy, halo, amino, (1-4C)alkylamino and di(1-4C)alkylamino , provided that such a substituent is not on a carbon adjacent to a heteroatom atom if present;

R_1a4: R_{14}C(O)O(1-6C)alkyl- wherein R_{14} is AR1, AR2, AR2a, AR2b, (1-4C)alkylamino, benzyloxy-(1-4C)alkyl or (1-10C)alkyl {optionally substituted as defined for (R_1a3)};

R_1a5: F, Cl, hydroxy, mercapto, (1-4C)alkylS(O)p- (p = 0,1 or 2), -NR_7R_8 (wherein R_7 and R_8 are as hereinbefore defined) or –OR_{10} (where R_{10} is as hereinbefore defined);

m is 0, 1 or 2;

R_{21} is selected from hydrogen, methyl [optionally substituted with cyano, trifluoromethyl, -C=WNRvRw (where W, Rv and Rw are as hereinbefore defined for R1a3), (1-4C)alkoxycarbonyl, (1-4C)alkoxy-(1-4C)alkoxycarbonyl, (1-4C)alkoxy-(1-4C)alkoxy-(1-4C)alkoxycarbonyl, CY1, CY2, AR1, AR2, AR2a, AR2b (not linked through nitrogen) or AR3], (2-10C)alkyl [optionally substituted other than on a carbon attached to the HET-3 ring nitrogen with one or two groups independently selected from the optional subsituents defined for R_1a3] and R_{14}C(O)O(2-6C)alkyl- ,wherein R_{14} is as defined hereinbefore for R_1a4 and wherein R_{14}C(O)O group is attached to a carbon other than the carbon attached to the HET-3 ring nitorogen;

R_{22} is cyano, -COR_{12}, -$COOR_{12}$, -$CONHR_{12}$, -$CON(R_{12})(R13)$, -SO_2R_{12} (provided that R_{12} is not hydrogen), -SO_2NHR_{12}, -$SO_2N(R_{12})(R_{13})$ or NO_2, wherein R_{12} and R_{13} are as defined hereinbelow;

R_{12} and R_{13} are independently selected from hydrogen, phenyl (optionally substituted with one or more substituents selected from halogen, (1-4C)alkyl and (1-4C)alkyl substituted with one, two, three or more halogen atoms) and (1-4C)alkyl (optionally substituted with one, two, three or more halogen atoms), or for any $N(R_{12})(R_{13})$ group, R_{12} and R_{13} may be taken together with the nitrogen to which they are attached to form a 5-7 membered ring optionally with an additional heteroatom selected from N, O, S(O)n in place of 1 carbon atom of the so formed ring; wherein the ring may be optionally substituted by one or two groups independently selected from (1-4C)alkyl (optionally substituted on a carbon not adjacent to

the nitrogen by cyano, hydroxy or halo), (3-6C)cycloalkyl, (1-4C)alkanoyl, -COO(1-4C)alkyl, S(O)n(1-4C)alkyl (wherein n = 1 or 2), AR1, AR2, , -C=OAR1, -C=OAR2, -COOAR1, -CS(1-4C)alkyl, –C(=S)O(1-4C)alkyl, -C(=W)NRvRw [wherein W is O or S, Rv and Rw are independently H, or (1-4C)alkyl], -S(O)pAR1 and -S(O)pAR2; wherein any (1-4C)alkyl chain may be optionally substituted by (1-4C)alkyl, cyano, hydroxy or halo; p = 0,1 or 2;

AR1 is an optionally substituted phenyl or optionally substituted naphthyl;

AR2 is an optionally substituted 5- or 6-membered, fully unsaturated (i.e with the maximum degree of unsaturation) monocyclic heteroaryl ring containing up to four heteroatoms independently selected from O, N and S (but not containing any O-O, O-S or S-S bonds), and linked via a ring carbon atom, or a ring nitrogen atom if the ring is not thereby quaternised;

AR2a is a partially hydrogenated version of AR2 (i.e. AR2 systems retaining some, but not the full, degree of unsaturation), linked via a ring carbon atom or linked via a ring nitrogen atom if the ring is not thereby quaternised;

AR2b is a fully hydrogenated version of AR2 (i.e. AR2 systems having no unsaturation), linked via a ring carbon atom or linked via a ring nitrogen atom;

AR3 is an optionally substituted 8-, 9- or 10-membered, fully unsaturated (i.e with the maximum degree of unsaturation) bicyclic heteroaryl ring containing up to four heteroatoms independently selected from O, N and S (but not containing any O-O, O-S or S-S bonds), and linked via a ring carbon atom in either of the rings comprising the bicyclic system;

AR3a is a partially hydrogenated version of AR3 (i.e. AR3 systems retaining some, but not the full, degree of unsaturation), linked via a ring carbon atom, or linked via a ring nitrogen atom if the ring is not thereby quaternised, in either of the rings comprising the bicyclic system;

AR3b is a fully hydrogenated version of AR3 (i.e. AR3 systems having no unsaturation), linked via a ring carbon atom, or linked via a ring nitrogen atom, in either of the rings comprising the bicyclic system;

AR4 is an optionally substituted 13- or 14-membered, fully unsaturated (i.e with the maximum degree of unsaturation) tricyclic heteroaryl ring containing up to four heteroatoms independently selected from O, N and S (but not containing any O-O, O-S or S-S bonds), and linked via a ring carbon atom in any of the rings comprising the tricyclic system;

AR4a is a partially hydrogenated version of AR4 (i.e. AR4 systems retaining some, but not the full, degree of unsaturation), linked via a ring carbon atom, or linked via a ring nitrogen atom if the ring is not thereby quaternised, in any of the rings comprising the tricyclic system;

CY1 is an optionally substituted cyclobutyl, cyclopentyl or cyclohexyl ring;
CY2 is an optionally substituted cyclopentenyl or cyclohexenyl ring;
wherein; optional substituents on AR1, AR2, AR2a, AR2b, AR3, AR3a, AR3b, AR4, AR4a, CY1 and CY2 are (on an available carbon atom) up to three substituents independently selected from (1-4C)alkyl {optionally substituted by substituents selected independently from hydroxy, trifluoromethyl, (1-4C)alkyl S(O)q- (q is 0, 1 or 2), (1-4C)alkoxy, (1-4C)alkoxycarbonyl, cyano, nitro, (1-4C)alkanoylamino, -CONRvRw or -NRvRw}, trifluoromethyl, hydroxy, halo, nitro, cyano, thiol, (1-4C)alkoxy, (1-4C)alkanoyloxy, dimethylaminomethyleneaminocarbonyl, di(N-(1-4C)alkyl)aminomethylimino, carboxy, (1-4C)alkoxycarbonyl, (1-4C)alkanoyl, (1-4C)alkylSO_2amino, (2-4C)alkenyl {optionally substituted by carboxy or (1-4C)alkoxycarbonyl}, (2-4C)alkynyl, (1-4C)alkanoylamino, oxo (=O), thioxo (=S), (1-4C)alkanoylamino {the (1-4C)alkanoyl group being optionally substituted by hydroxy}, (1-4C)alkyl S(O)q- (q is 0, 1 or 2) {the (1-4C)alkyl group being optionally substituted by one or more groups independently selected from cyano, hydroxy and (1-4C)alkoxy}, -CONRvRw or -NRvRw [wherein Rv is hydrogen or (1-4C)alkyl; Rw is hydrogen or (1-4C)alkyl];
and further optional substituents on AR1, AR2, AR2a, AR2b, AR3, AR3a, AR3b, AR4, AR4a, CY1 and CY2 (on an available carbon atom), and also on alkyl groups (unless indicated otherwise) are up to three substituents independently selected from trifluoromethoxy, benzoylamino, benzoyl, phenyl {optionally substituted by up to three substituents independently selected from halo, (1-4C)alkoxy or cyano}, furan, pyrrole, pyrazole, imidazole, triazole, pyrimidine, pyridazine, pyridine, isoxazole, oxazole, isothiazole, thiazole, thiophene, hydroxyimino(1-4C)alkyl, (1-4C)alkoxyimino(1-4C)alkyl, halo-(1-4C)alkyl, (1-4C)alkanesulfonamido, -SO_2NRvRw [wherein Rv is hydrogen or (1-4C)alkyl; Rw is hydrogen or (1-4C)alkyl]; and
optional substituents on AR2, AR2a, AR2b, AR3, AR3a, AR3b, AR4 and AR4a are (on an available nitrogen atom, where such substitution does not result in quaternization) (1-4C)alkyl, (1-4C)alkanoyl {wherein the (1-4C)alkyl and (1-4C)alkanoyl groups are optionally substituted by (preferably one) substituents independently selected from cyano, hydroxy, nitro, trifluoromethyl, (1-4C)alkyl S(O)q- (q is 0, 1 or 2), (1-4C)alkoxy, (1-4C)alkoxycarbonyl, (1-4C)alkanoylamino, -CONRvRw or -NRvRw [wherein Rv is hydrogen or (1-4C)alkyl; Rw is hydrogen or (1-4C)alkyl]}, (2-4C)alkenyl, (2-4C)alkynyl, (1-4C)alkoxycarbonyl or oxo (to form an N-oxide).

2. A compound of the formula (I) as claimed in claim 1, or a pharmaceutically-acceptable salt or an in-vivo hydrolysable ester thereof, wherein R_1b is $-NHC(W)R_{24}$.

3. A compound of the formula (I) as claimed in claim 1 or claim 2, or a pharmaceutically-acceptable salt, or an in-vivo hydrolysable ester thereof, wherein R_4 is R_4b.

4. A compound of the formula (I) as claimed in any preceding claim or a pharmaceutically-acceptable salt, or an in-vivo hydrolysable ester thereof, wherein HET-3 is selected from HET3-T, HET3-V, HET3-Y and HET-3-W.

5. A compound of the formula (I) as claimed in any preceding claim, or a pharmaceutically-acceptable salt, or an in-vivo hydrolysable ester thereof, wherein HET-3 is selected from HET3-V and HET3-Y.

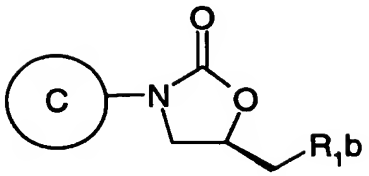
6. A compound of the formula (I) as claimed in any preceding claim, or a pharmaceutically-acceptable salt, or an in-vivo hydrolysable ester thereof, wherein R_1a is R_1a3.

7. A compound of the formula (I) as claimed in any preceding claim, or a pharmaceutically-acceptable salt, or an in-vivo hydrolysable ester thereof, wherein group C is group D.

8. A compound of the formula (I) as claimed in claims 1 to 6, or a pharmaceutically-acceptable salt, or an in-vivo hydrolysable ester thereof, wherein group C is group E.

9. A compound of the formula (I) as claimed in claims 1 to 6, or a pharmaceutically-acceptable salt, or an in-vivo hydrolysable ester thereof, wherein W is O.

10. A compound of the formula (Ia), or a pharmaceutically-acceptable salt, or an in-vivo hydrolysable ester thereof, wherein groups C and R_1b have meanings as stated in any one of the preceding claims.



(Ia)

11. A pro-drug of a compound as claimed in any one of the previous claims.

12 A method for producing an antibacterial effect in a warm blooded animal which comprises administering to said animal an effective amount of a compound of the invention as claimed in any one of claims 1 to 10, or a pharmaceutically-acceptable salt, or in-vivo hydrolysable ester thereof.

13. A compound of the invention as claimed in any one of claims 1 to 10, or a pharmaceutically-acceptable salt, or in-vivo hydrolysable ester thereof, for use as a medicament.

14. The use of a compound of the invention as claimed in any one of claims 1 to 10, or a pharmaceutically-acceptable salt, or in-vivo hydrolysable ester thereof, in the manufacture of a medicament for use in the production of an antibacterial effect in a warm blooded animal.

15. A pharmaceutical composition which comprises a compound of the invention as claimed in any one of claims 1 to 10, or a pharmaceutically-acceptable salt or an in-vivo hydrolysable ester thereof, and a pharmaceutically-acceptable diluent or carrier.

16. A process for the preparation of a compound of formula (I) as claimed in claim 1 or pharmaceutically acceptable salts or in-vivo hydrolysable esters thereof, which process comprises one of processes (a) to (f); and thereafter if necessary:

i) removing any protecting groups;

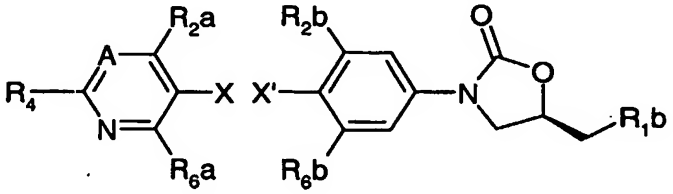
ii) forming a pro-drug (for example an in-vivo hydrolysable ester); and/or

iii) forming a pharmaceutically-acceptable salt;

wherein said processes (a) to (f) are:

a) by modifying a substituent in, or introducing a substituent into another compound of the invention by using standard chemistry;

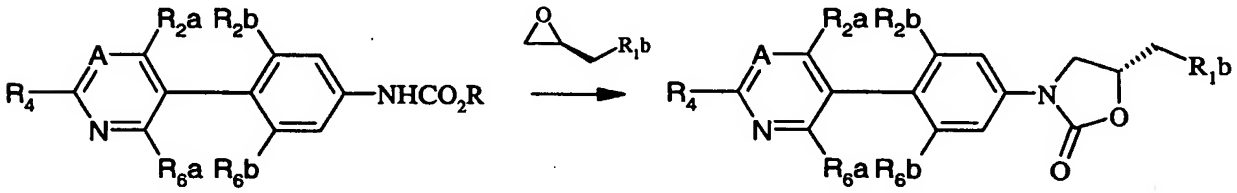
b) by reaction of a molecule of a compound of formula (IIa) [wherein X is a leaving group useful in palladium coupling and in this instance A is either N or C-R_3a] with a molecule of a compound of formula (IIb) (wherein X' is a leaving group useful in palladium coupling,) wherein X and X' are such that an aryl-aryl, heteroaryl-aryl, or heteroaryl-heteroaryl bond replaces the aryl-X (or heteroaryl-X) and aryl-X' (or heteroaryl-X') bonds;



(IIa) (IIb)

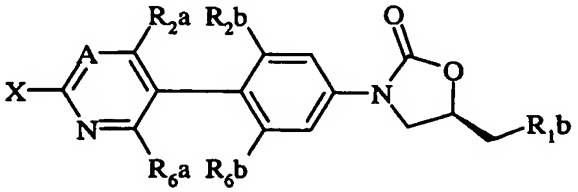
and X and X' are chosen to be different lead to the desired cross-coupling products of formula (I);

c) by reaction of a heterobiaryl derivative (III) carbamate [where A is either N or C-R_3a] with an appropriately substituted oxirane to form an oxazolidinone ring;



(III)

(d) by reaction of a compound of formula (VI) :



(VI)

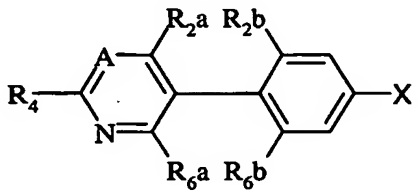
where X is a replaceable substituent and A is either N or CR_3a with a compound of the formula (VII):

T-X'

(VII)

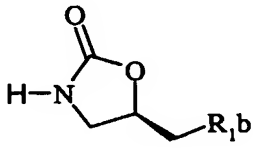
wherein T-X' is HET3 as herein above defined and X' is a replaceable C-linked substituent - wherein the substituents X and X' are chosen to be complementary pairs of substituents known in the art to be suitable for coupling reactions catalysed by transition metals; or

(d(i)) by reaction catalysed by transition metals such as palladium(0) of a compound of formula (VIII):



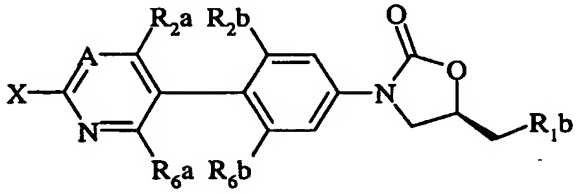
(VIII)

wherein X is a replaceable substituent and wherein in this instance A is either N or C-R_3a with a compound of the formula (IX):



(IX)

(d(ii)) by reaction of a compound of formula (X):



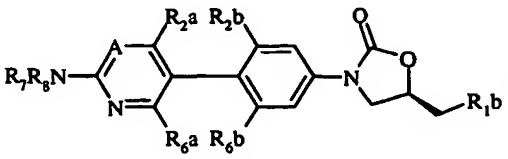
(X)

wherein X is a replaceable substituent and wherein in this instance A is either N or C-R_3a with a compound of the formula (XI):

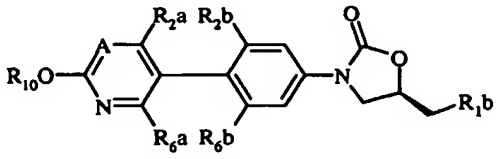
T-H

(XI)

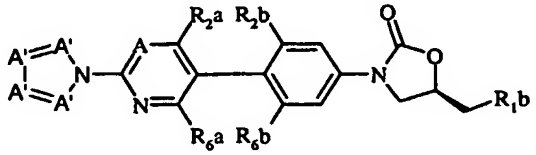
wherein T-H is an amine R_7R_8NH, an alcohol $R_{10}OH$, or an azole with an available ring-NH group to give compounds (XIIa), (XIIb), or (XIIc) wherein in this instance A is nitrogen or C-R_3a and A' is nitrogen or carbon optionally substituted with one or more groups R_1a.



(XIIa)

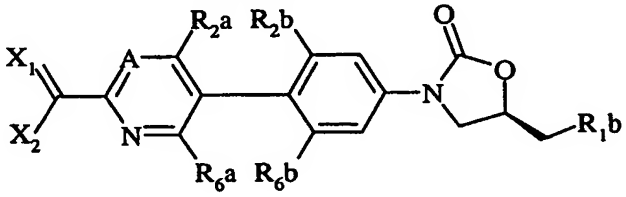


(XIIb)



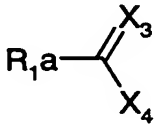
(XIIc)

(e) by reaction of a compound of formula (XIII):



(XIII)

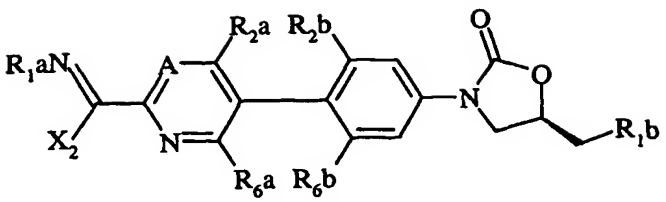
wherein X_1 and X_2 here are independently optionally substituted heteroatoms drawn in combination from O, N, and S such that $C(X_1)X_2$ constitutes a substituent that is a carboxylic acid derivative substituent and wherein in this instance A is either N or C-R_3a with a compound of the formula (XIV) and X_3 and X_4 are independently optionally substituted heteroatoms drawn in combination from O, N, and S:



(XIV)

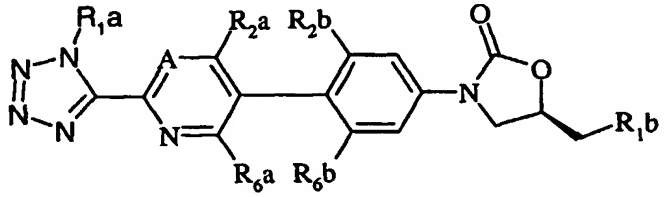
and wherein one of $C(X_1)X_2$ and $C(X_3)X_4$ constitutes an optionally substituted hydrazide, thiohydrazide, or amidrazone, hydroximidate, or hydroxamidine and the other one of $C(X_1)X_2$ and $C(X_3)X_4$ constitutes an optionally substituted acylating, thioacylating, or imidoylating agent such that $C(X_1)X_2$ and $C(X_3)X_4$ may be condensed together to form a 1,2,4-heteroatom 5-membered heterocycle containing 3 heteroatoms drawn in combination from O, N, and S, for instance thiadiazole; or

(e (i)) by reaction of a compound of formula (XV):



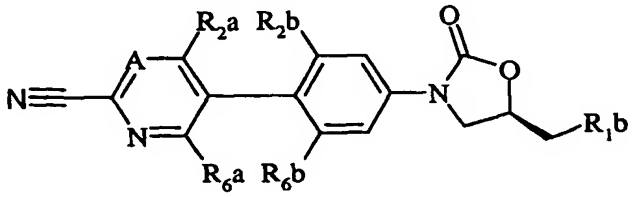
(XV)

wherein X_2 is a displaceable group and wherein in this instance A is either N or C-R_3a with a source of azide anion to give a tetrazole (XVI)



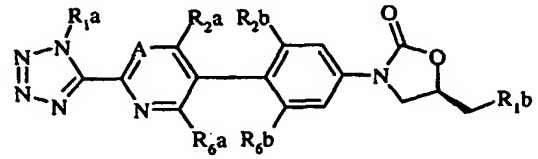
(XVI)

or where nitriles of formula (XVII)

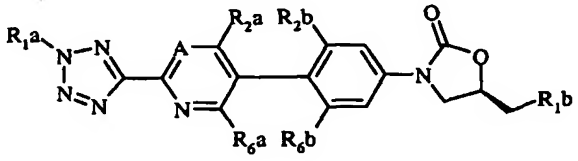


(XVII)

[wherein in this instance A is either N or C-R_3a] may be reacted directly with azides such as ammonium azide or trialkylstannylazides to give tetrazoles (XVI, R_1a = H) that are subsequently alkylated with groups R_1a ≠ H to give tetrazoles (XVIIIa) and (XVIIIb) or;

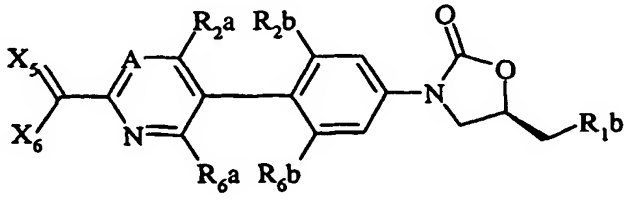


(XVIIIa)



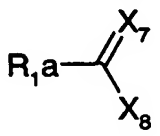
(XVIIIb)

(f) by reaction of a compound of formula (XIX):



(XIX)

[wherein in this instance A is either N or C-R_3a] with a compound of the formula (XX):



(XX)

wherein one of $C(X_5)X_6$ and $C(X_7)X_8$ constitutes an optionally substituted alpha-(leaving-group-substituted)ketone, wherein the leaving group is for example a halo-group or an (alkyl or aryl)-sulfonyloxy-group, and the other one of $C(X_5)X_6$ and $C(X_7)X_8$ constitutes an optionally substituted amide, thioamide, or amidine, such that $C(X_5)X_6$ and $C(X_7)X_8$ are groups that may be condensed together to form a 1,3-heteroatom 5-membered heterocycle containing 2 heteroatoms drawn in combination from O, N, and S.